Stand By

You will hear silence until the presentation begins

- The HIV/STD/TB/Hepatitis Program in the Division of Disease Control conducts Lunch and Learn Webinars for health-care professionals.
- Each month a new topic will be held from 12:00 p.m. to 1:00 p.m. CST on the fourth Wednesday of the month.
- Nursing education credits will be available for these presentations. Registration and schedule of topics are available at: http://www.ndhealth.gov/HIV/events.htm.

Please take post-test to receive CEU's for this presentation. You must score at least 70% to receive credit.

This presentation will be archived and available for review on: www.ndhealth.gov/HIV/Resources/resources.htm

Sexually Transmitted Infections

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MountainPLAINS AIDS Education and Training Center

Outline

- Classification of STIs
- Clinical Presentation of STIs
- Treatment

Classification

Syndrome	Organism
"Sores" • Genital Ulcers	T. pallidum, HSV, H. ducrei, Chlamydia
"Drips" • Urethritis • Cervicitis	Chlamydia, Gonorrhea, Trichomoniasis
"Discharges" • Vaginitis	Trichomoniasis, Bacterial vaginosis, Candidiasis
• Gential warts / Cervical Cancer • Hepatitis A, B • AIDS	HPV Hepatitis viruses HIV

Genital Ulcers

- Herpes
- Syphilis vs. Herpes
- Lymphogranuloma Venerum

A woman married x15 years presents to the clinic for painful vaginal ulcers and is diagnosed with herpes simplex. Reports no prior history of HSV and husband also denies history of HSV. Both deny extramarital affairs. Which of the following statements is true?

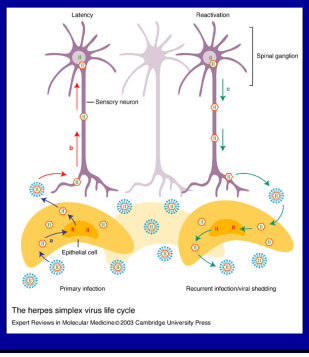
1. Patient's husband likely had an affair with HSV infected person
2. Patient likely had an affair with HSV infected person
3. Patient likely had HSV as young adult and now reactivating
4. It's unclear who, but someone had an extramarital affair

Herpes versus True Love

Herpes Simplex Virus

- Humans are only reservoir
- Spreads by direct contact
- Lesions need NOT be present to transmit virus
- Largely mucocutaneous disease:
  - HSV-1: oral cavity
  - HSV-2: urogenital

Herpes Simplex Virus

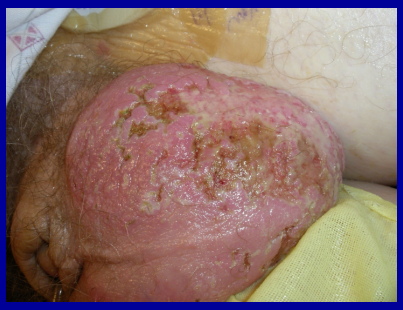


The herpes simplex virus life cycle

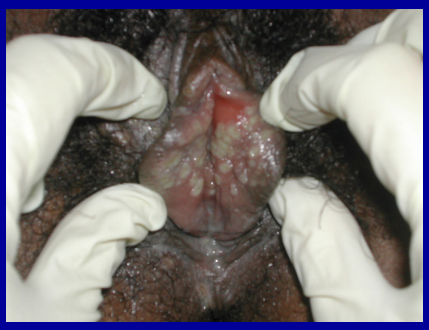
Herpes Simplex Virus

- Primary infection:
  - Tends to be most symptomatic
  - Fever, lymphadenopathy, aseptic meningitis
  - Classic rash: painful, grouped vesicles
  - May be clinically silent

Herpes Simplex Virus

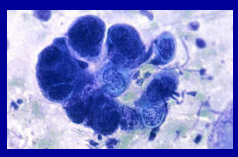


Herpes Simplex Virus



Herpes Simplex Virus

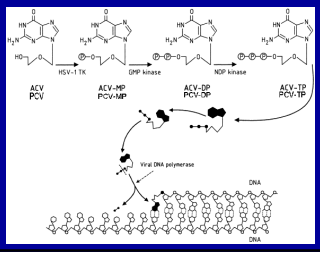
- Diagnosis:
  - Clinical
  - Tzanck test
  - Viral Culture
  - PCR



Genital Herpes - Treatment

Acyclovir: deoxyguanosine analogue

Penciclovir: acyclic guanosine analogue



Genital Herpes - Treatment

- acyclovir:
  - DNA polymerase inhibitor
  - automatic viral DNA terminator
- valacyclovir: L-valine ester acyclovir (prodrug)
- penciclovir:
  - competitive DNA polymerase inhibitor
- famciclovir: diecetyl ester penciclovir (prodrug)

Genital Herpes - Treatment

Drug	Bioavailability	Cmax (µg/mL)
acyclovir 200 mg	12 – 16 %	0.8
acyclovir 800 mg	12 – 16 %	1.6
acyclovir 5 mg/kg IV	NA	9.8
valacyclovir 1000 mg	54 – 70%	5
valacyclovir 2000 mg	54 – 70%	8
penciclovir	ONLY TOPICAL FORMULATION APPROVED	
famciclovir 250 mg	77%	2
famiclovir 500 mg	77%	4

HSV Primary - Treatment

- Recommended for all patients
- Rx: 7 – 10 days

acyclovir 400 mg 3x/day

OR

acyclovir 200mg 5x/day

OR

famciclovir 250mg 3x/day

OR

valacyclovir 1g 2x/day

Herpes Simplex Virus

- Recurrent disease:
  - Milder, fewer lesions, heal faster

Recurrent genital HSV

Suppressive Therapy	Episodic Therapy
Reduces frequency 80%	Initiation within 1 day of therapy
Decreased risk of transmission to partners	
Daily therapy	

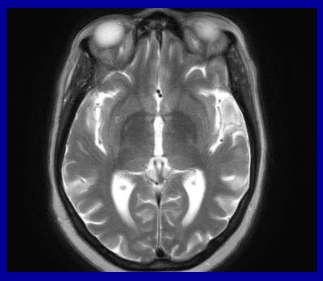
Suppressive Therapy Regiment	Episodic Therapy Regimen
acyclovir 400mg twice daily	acyclovir 400 mg 3x/d x 5 days
famciclovir 250mg twice daily	acyclovir 800mg 2x/d x 5 days
valacyclovir 500 mg daily	acyclovir 800mg 3x/d x 2 days
	famciclovir 125mg 2x/d x 5 days
	famciclovir 1000mg 2x/d x 1 day
	valacyclovir 500 mg 2x/d x 3 days

HSV: immunosuppressed

HSV: Severe Disease

- acyclovir 5 – 10mg / kg iv every 8 hours
- For acyclovir resistant herpes:
  - foscarnet
  - cidofovir

A 52 yo F is admitted to the ICU with status epilepticus. LP is remarkable for elevated platelet count. She has hx of seizure disorder going back 5 years ago and is noncompliant with medications.



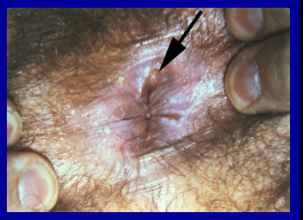
Syphilis

- Symptoms: “Great Imitator”

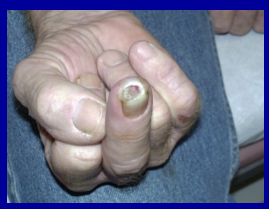
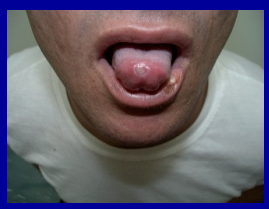
Stage	Symtpoms
Primary	Painless chancre
Secondary	Disseminated, Condylomata lata Rash on palms and soles
Tertiary	Gummas Aortitis Neurosyphilis Argyll Robertson pupil

Syphilis - Primary

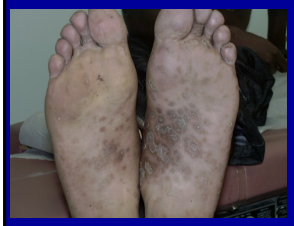
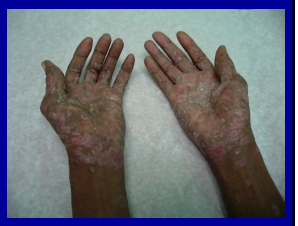
- PAINLESS ulcer

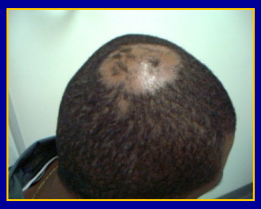
Syphilis - Primary

Syphilis - Secondary

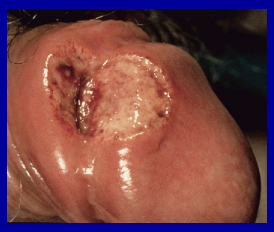



Syphilis - Secondary



Syphilis - Tertiary

- Tertiary
  - Gumma
  - Neurosyphillis
    - stroke
    - meningitis
    - auditory / ophthalmic



Types of Penicillin

Penicillin			
Penicillin V	Penicillin G	benzathine penicillin	procaine penicillin
Oral only	IV only	IM Levels x 15 – 30 days	IM Levels x 12 hours

Syphilis - Treatment

Stage	Treatment
Primary Secondary	Benzathine penicillin G 2.4 million units IM x 1

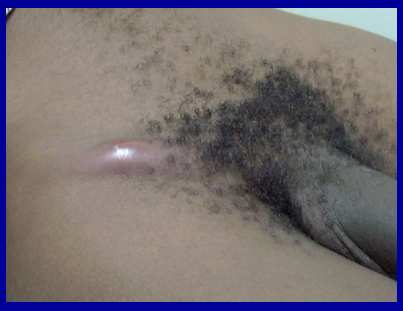
- Bicillin L – A ®: benzathine penicillin : APPROPRIATE
- Bicillin C – R ®: benzathine-procaine penicillin : DO NOT USE

Lymphogranuloma venerum

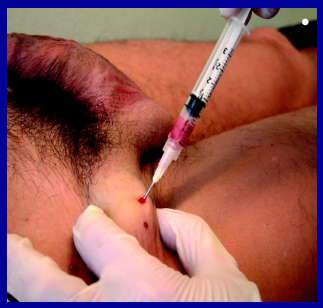
- Etiology:
  - Chlamydia trichomatis serovar L 1-3
- Spread:
  - breaks in skin or mucosal membrane
- Manifestations: primarily disease of lymph nodes
  - 1: painless genital lesions
  - 2: swelling of lymph nodes
  - Ano-rectal syndrome most common
  - Can present with pharyngeal manifestations

Lymphogranuloma venerum (LGV)

Lymphogranuloma venerum (LGV)



Lymphogranuloma venerum (LGV)



- Diagnosis:
  - serology test
  - PCR

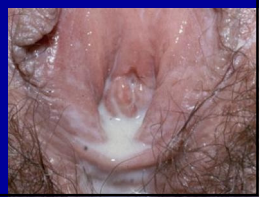
LGV

Recommended	Doxycycline 100 mg twice daily x 21 days
Probably effective	Azithromycin 1 gm weekly x 3 weeks
Maybe effective	Fluoroquinolone based regimen

- Partners
  - Examine / test contacts within 60 days
  - Treat with either doxycycline 100 mg twice daily x 7 days OR azithromycin 1 gm once

Trichomonas

- Women: green, malodor discharge
- Men: usually asymptomatic
- Testing:
  - Trichomonas rapid test kit
  - Nucleic acid probes



Trichomonas -Treatment

- Nitroimidazoles: only class known to work

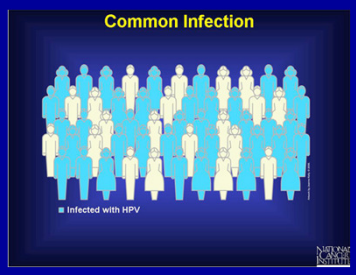
SINGLE DOSE metronidazole 2g OR tinidazole 2g → IF FAILS → metronidazole 500mg bid x 7 days → IF FAILS → 5 DAYS metronidazole 2g OR tinidazole 2g

- Clinical Pearls:
  - Women: recheck after 3 months
  - Metronidazole gel: < 50% effective

The most common STI in the US is:

1. Syphilis
2. HIV
3. Chlamydia
4. Gonorrhea
5. Human Papilloma Virus

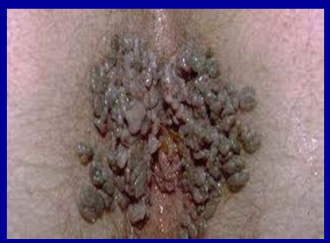
The Most Common STI

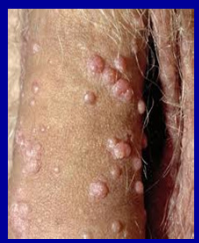


Human papilloma virus

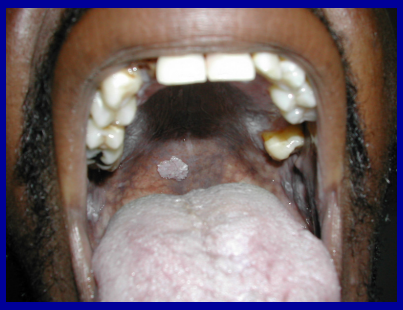
HPV

- Virus which causes warts





HPV



HPV: Treatment

Await Spontaneous Resolution	• Acceptable in some cases for patients to forgo treatment and await spontaneous resolution
Provider Applied	• Cryotherapy • Surgical removal • trichloroacetic or bichloroacetic acid
Patient Applied	• podofilox • imiquimod • sinecatechin

HPV: Treatment

- Trichloroacetic acid / Bichloroacetic acid
  - MOA: cellular protein coagulation
  - Applied once a week (low viscosity…can spread to normal skin rapidly)
  - If excess applied apply talc / sodium bicarb / liquid soap
  - **Safe in pregnancy**

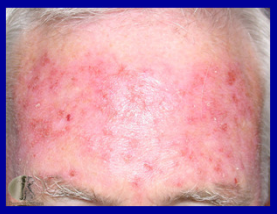
HPV: Treatment

- Podofilox
  - mechanism of action against HPV unknown
  - apply to warts twice daily x 3 days then no therapy x 4 days up to 4 cycles

	Initially Cleared	Recurrent after Rx	Cleared at 2 week f/u
% warts	79%	35%	60%
% patients	50%	60%	25%

HPV - Treatment

- Imiquimod
  - MOA: activated immune cells via TLR7
  - apply daily at bedtime and wash after 6 – 10 hours (3 – 16 weeks)

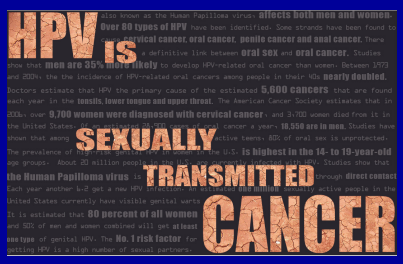


HPV: Treatment

- Sinecatechin (green tea extract)
  - MOA: unknown
  - apply 3x / day. Do not wash off
  - avoid sexual contact while product on skin
  - erythema / pain / burning are common

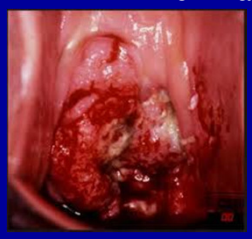
	Initially Cleared	Recurrent after Rx
% warts	57%	6.5%

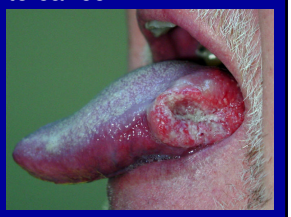
Human Papilloma Virus



HPV

From warts to cancer





Vaccine Recommendations

	Females	Males
Earliest dose	9	9
Recommended 1st dose	11 – 12	11-12
"Catch-up" Period	13 – 26	13 – 21
Permissive	--	Up to 26

- Special populations:
  - Pregnancy: not recommended – limited data
  - Pre-existing cervical abnormality: recommended
  - Immunosuppressed: no specific recommendation – safety established in HIV+

HPV Myths…don't get vaccinated!

Myth	Fact
Most people don't get HPV	80% of population will have HPV at some point
Condoms protect against HPV	Transmission skin – skin contact
HPV may contribute to mental retardation	35 million doses have been administered, no evidence of brain damage.

Questions